Express Mail: EV 330728609 US
Attorney Docket: 2500803-991110
For: System, Method, and Computer Program for
Remotely ..., filed November 3, 2003
Inventor: Jody Shapiro; Page 1 of 17
Attorney: Andrew V. Smith, 415-836-2522

100

Content
provider
105

Scripts 140

Delivery management
server
125

HTTP request 130,

Configuration
information
135

Server contact
code 120

Web
page
115

User
110

Timing
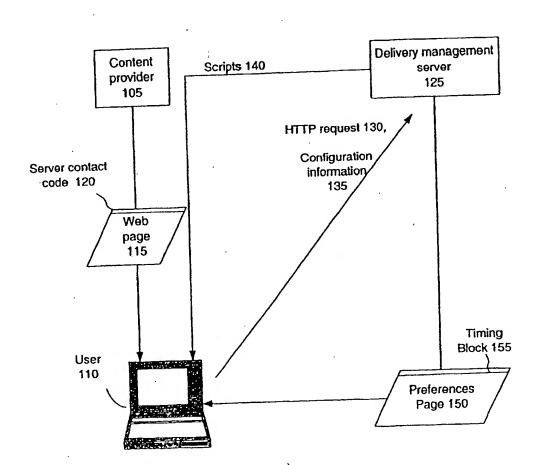Block 155

Preferences
Page 150

FIG. 1

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200

Processor 204

Main Memory 208

Display Interface 202 → Display 230

Secondary Memory 210

Hard Disk Drive 212

Removable Storage Drive 214 ----- Removable Storage Unit 218

Interface 220 ----- Removable Storage Unit 222

Communication Infrastructure 206

228

Communications Interface 224

Communications Path 226

FIG. 2

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300

Start ~305

User loads page of content provider ~310

Player detection code is fetched from delivery managment server ~320

Perform player detection ~325

Store in cookies ~330

Sufficient Information? ~331

No → Present preference page ~332

Receive preferences ~333

Store in cookies ~334

Yes → User makes HTTP request, any cookies are sent to delivery management server ~335

Return ~370

FIG. 3 A

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Inventor: Jody Shapiro; Page 4 of 17
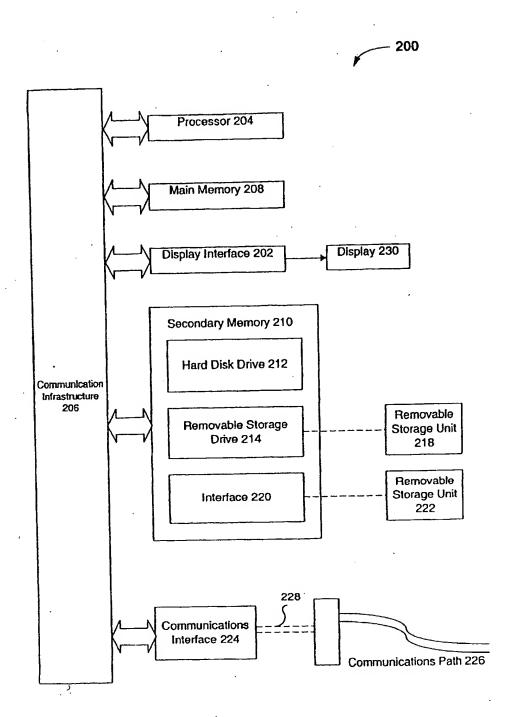Attorney: Andrew V. Smith, 415-836-2522

2   Flow Charts

Server-side
request processing
(Figure 1)

Delivery Manager
HTTP request
received — 371

Delivery Manager
cookies received? — 372

Yes

No

Send HTTP response
containing code to send
client to Detection URL — 373

Return empty
HTTP response — 374

FIG. 3B

Detection URL
HTTP request
received — 375

Analyze HTTP headers
to determine Operating
System, Platform, HTTP
client (user agent) — 376

Z

Send TimerStart code — 377

Send data block for
bandwidth
measurement — 378

Send TimerStop code — 379

Calculate bandwidth
and store it in a cookie — 380

Send client-side
media player
detection code — 381

FIG. 3C

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For: System, Method, and Computer Program for
Remotely ..., filed November 3, 2003
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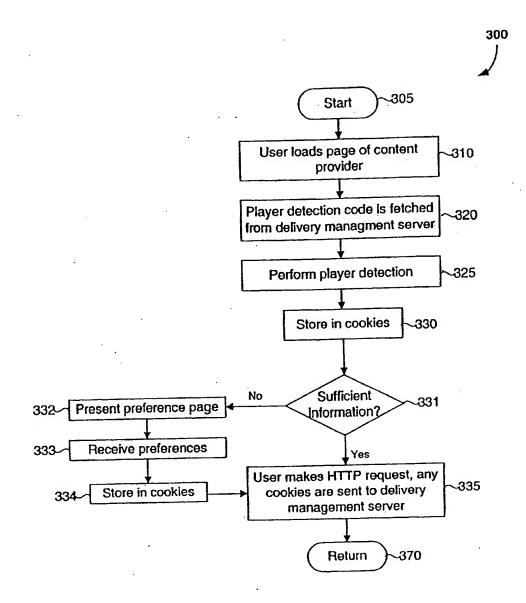Attorney: Andrew V. Smith, 415-836-2522

Z

SEND MODIFIED INFORMATION
HEADER INSTRUCTION ∽ 382

SEND UNIQUE CLIENT ID ∽ 383

CLIENT ACKNOWLEDGES INSTRUCTION AND
APPENDS CLIENT ID POINTER ADDRESS
INFORMATION ∽ 384

CLIENT PREPARES MODIFIED
HEADER INFORMATION ∽ 385

CLIENT SENDS MODIFIED HEADER
INFORMATION WITH
ID UPON FURTHER REQUEST ∽ 386

RETURN ∽ 387
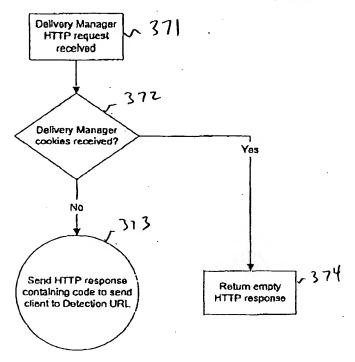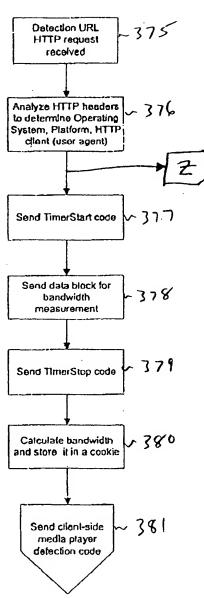
FIG. 3D

Express Mail: EV 330728609 US
Attorney Docket: 2500803-991110
For: System, Method, and Computer Program for
Remotely ..., filed November 3, 2003
Inventor: Jody Shapiro; Page 6 of 17
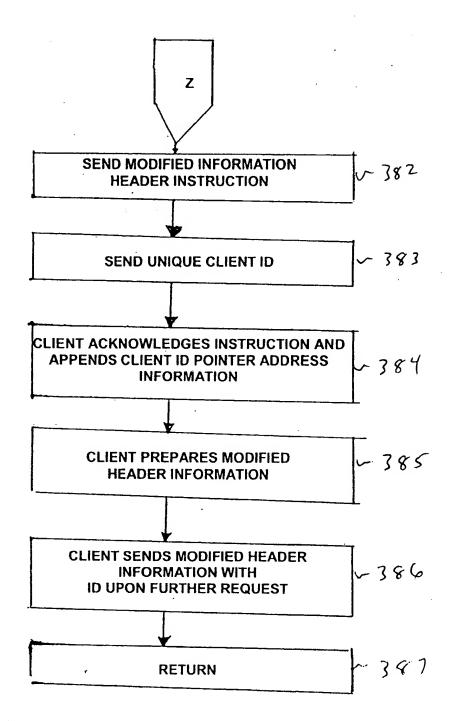Attorney: Andrew V. Smith, 415-836-2522

325

```
                          ┌─────────┐
                          │  Start  │──405
                          └─────────┘
                               │
                               ▼
         NETSCAPE         ╱ Netscape ╲──410        IE
      ┌───────────────── ⟨  or IE?   ⟩ ─────────────────┐
      │                   ╲         ╱                    │
      │                    ╲       ╱                     │
      ▼                                                  ▼
┌───────────────┐                              ┌───────────────┐
│ String search │──411                         │ Try to        │──420
│ through       │◄──────────┐                  │ instantiate   │◄────────┐
│ mimetype      │           │                  │ object for    │         │
│ and plugin    │           │                  │ media         │         │
│ arrays for    │           │                  │ player        │         │
│ media player  │           │                  └───────────────┘         │
└───────────────┘           │                         │                  │
      │                     │                         ▼                  │
      ▼                     │                    ╱Permitted?╲    No       │
  ╱ Player ╲     No         │           425── ⟨            ⟩ ─────────┐   │
413─⟨ found? ⟩ ─────┐        │                  ╲          ╱           │   │
  ╲        ╱        │        │                   ╲        ╱            │   │
      │ Yes         │        │                      │ Yes             │   │
      ▼             │        │                      ▼                 │   │
┌───────────────┐   │        │              ┌───────────────┐         │   │
│ Player is     │──415       │              │ Player is     │──430     │   │
│ present       │   │        │              │ present       │         │   │
└───────────────┘   │        │              └───────────────┘         │   │
      │             │        │                      │                 │   │
      ▼◄────────────┘        │                      ▼◄────────────────┘   │
  ╱ Check for ╲     Yes      │                 ╱ Check for ╲    Yes        │
 ⟨ another    ⟩──416─────────┘                ⟨ another    ⟩──440──────────┘
  ╲ media     ╱                                ╲ media     ╱
   ╲ player? ╱                                  ╲ player? ╱
      │                                            │
      │ No                                         │ No
      ▼                                            │
┌─────────┐                                        │
│ Return  │◄───────────────────────────────────────┘
└─────────┘
417
```

FIG. 4A

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For: System, Method, and Computer Program for
Remotely ..., filed November 3, 2003
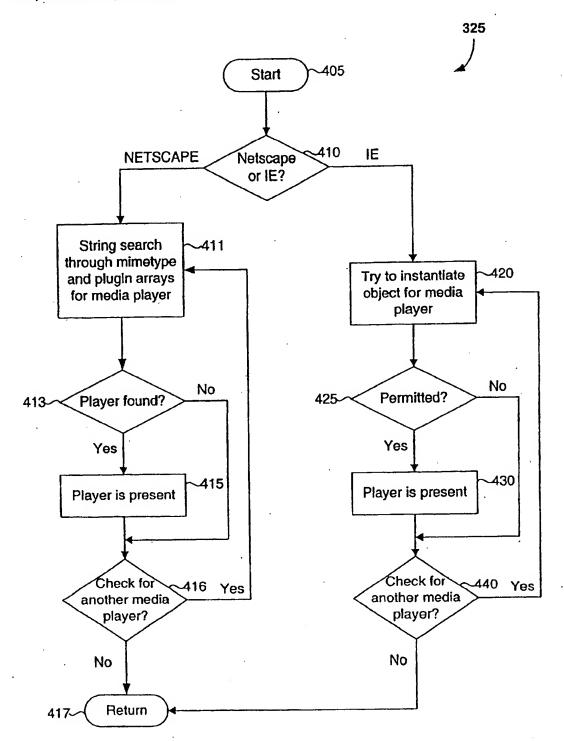Inventor: Jody Shapiro; Page 7 of 17
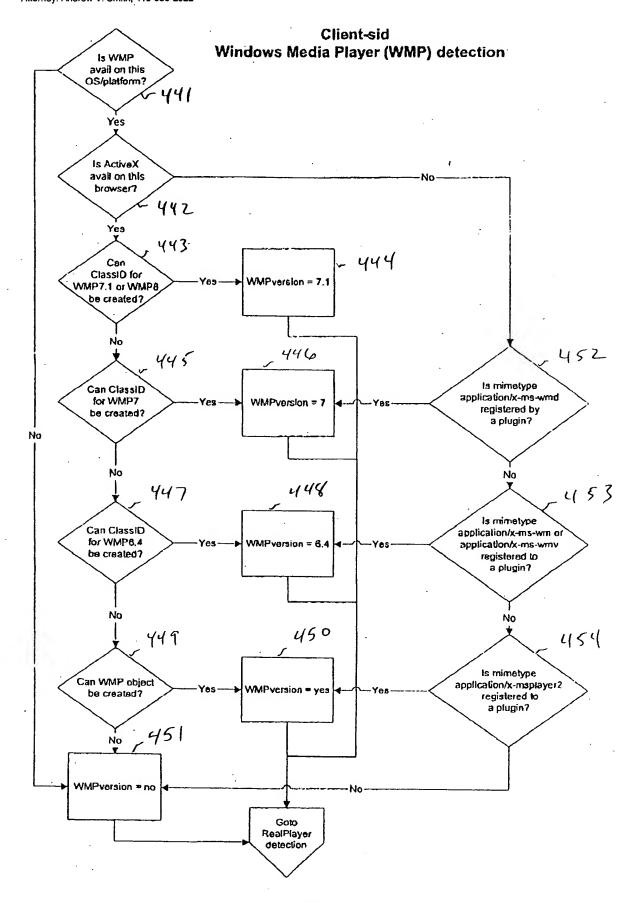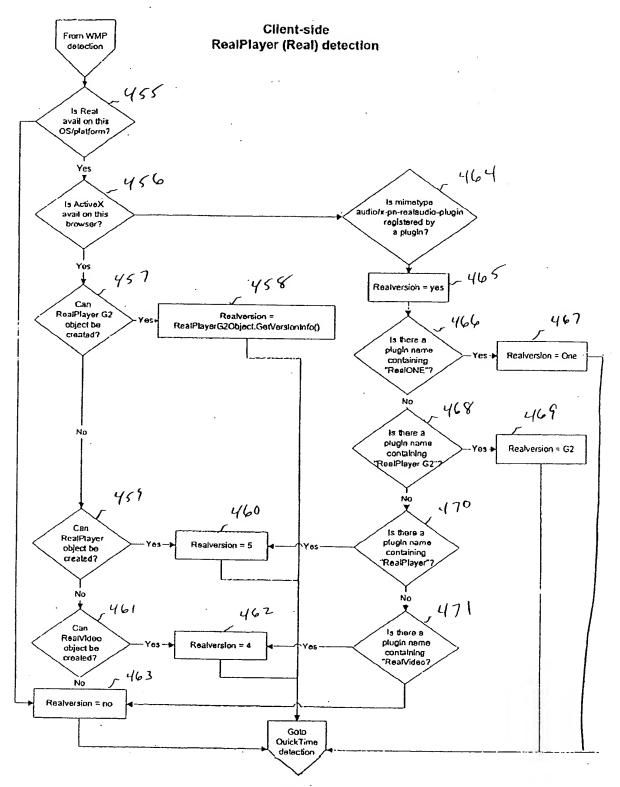Attorney: Andrew V. Smith, 415-836-2522

Client-sid
Windows Media Player (WMP) detection

Is WMP avail on this OS/platform? — 441

Yes

Is ActiveX avail on this browser? — 442 — No

Yes

Can ClassID for WMP7.1 or WMP8 be created? — 443 — Yes → WMPversion = 7.1 — 444

No

Can ClassID for WMP7 be created? — 445 — Yes → WMPversion = 7 — 446 — Yes — Is mimetype application/x-ms-wmd registered by a plugin? — 452

No

No

Can ClassID for WMP6.4 be created? — 447 — Yes → WMPversion = 6.4 — 448 — Yes — Is mimetype application/x-ms-wm or application/x-ms-wmv registered to a plugin? — 453

No

No

Can WMP object be created? — 449 — Yes → WMPversion = yes — 450 — Yes — Is mimetype application/x-msplayer2 registered to a plugin? — 454

No — 451

No

WMPversion = no — 451 ← No
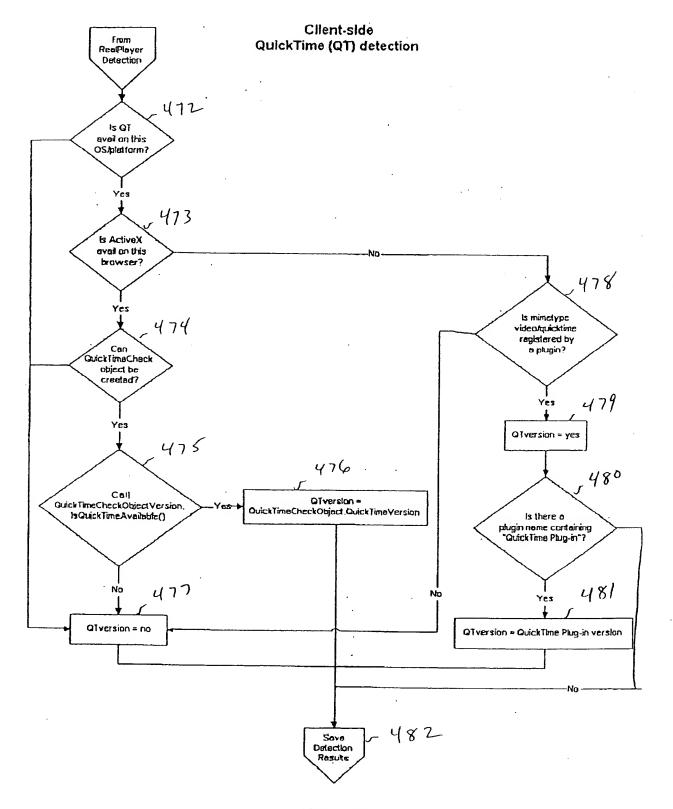
No

Goto RealPlayer detection

FIG. 4B

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**Client-side
RealPlayer (Real) detection**

From WMP
detection

455

Is Real
avail on this
OS/platform?

Yes

456

Is ActiveX
avail on this
browser?

Yes

457

Can
RealPlayer G2
object be
created?

Yes→

458

Realversion =
RealPlayerG2Object.GetVersionInfo()

No

459

Can
RealPlayer
object be
created?

Yes→

460

Realversion = 5

←Yes

No

461

Can
RealVideo
object be
created?

Yes→

462

Realversion = 4

←Yes

No

463

Realversion = no

464

Is mimetype
audio/x-pn-realaudio-plugin
registered by
a plugin?

465

Realversion = yes

466

Is there a
plugin name
containing
"RealONE"?

Yes→

467

Realversion = One

No

468

Is there a
plugin name
containing
"RealPlayer G2"?

Yes→

469

Realversion = G2

No

470

Is there a
plugin name
containing
"RealPlayer"?

No

471

Is there a
plugin name
containing
"RealVideo?

Goto
QuickTime
detection

FIG. 4C

Express Mail: EV 330728609 US
Attorney Docket: 2500803-991110
For: System, Method, and Computer Program for
Remotely ..., filed November 3, 2003
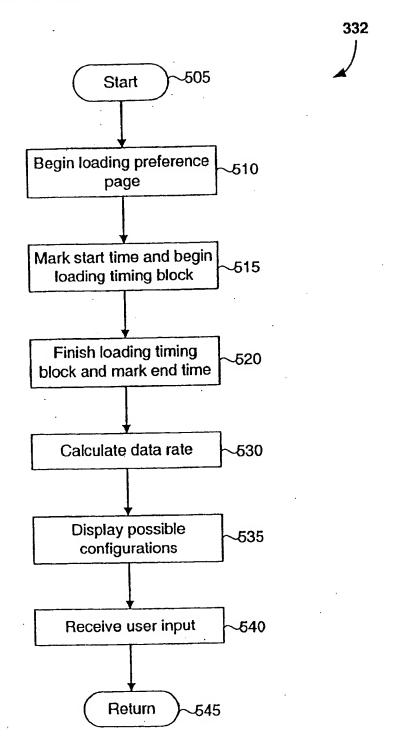Inventor: Jody Shapiro; Page 9 of 17
Attorney: Andrew V. Smith, 415-836-2522

Client-side
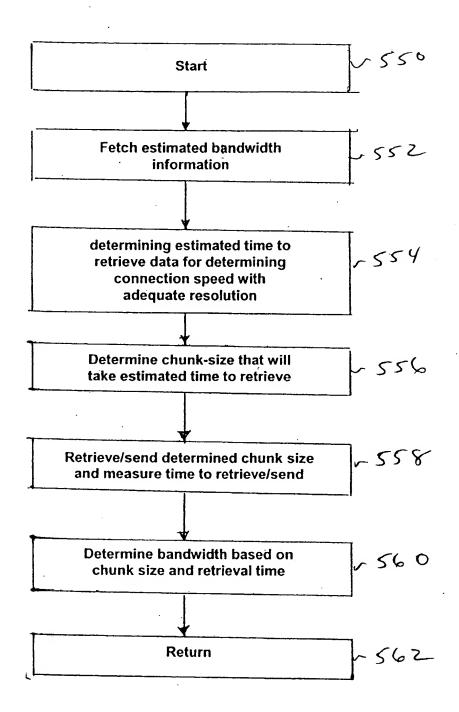## QuickTime (QT) detection

FIG. 4D

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For: System, Method, and Computer Program for
Remotely ..., filed November 3, 2003
Inventor: Jody Shapiro; Page 10 of 17
Attorney: Andrew V. Smith, 415-836-2522

332

```
        ( Start )──505
            │
            ▼
   ┌──────────────────────┐
   │ Begin loading        │──510
   │ preference page      │
   └──────────────────────┘
            │
            ▼
   ┌──────────────────────┐
   │ Mark start time and  │──515
   │ begin loading        │
   │ timing block         │
   └──────────────────────┘
            │
            ▼
   ┌──────────────────────┐
   │ Finish loading timing│──520
   │ block and mark end   │
   │ time                 │
   └──────────────────────┘
            │
            ▼
   ┌──────────────────────┐
   │ Calculate data rate  │──530
   └──────────────────────┘
            │
            ▼
   ┌──────────────────────┐
   │ Display possible     │──535
   │ configurations       │
   └──────────────────────┘
            │
            ▼
   ┌──────────────────────┐
   │ Receive user input   │──540
   └──────────────────────┘
            │
            ▼
        ( Return )──545
```

FIG. 5 A

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Inventor: Jody Shapiro; Page 11 of 17
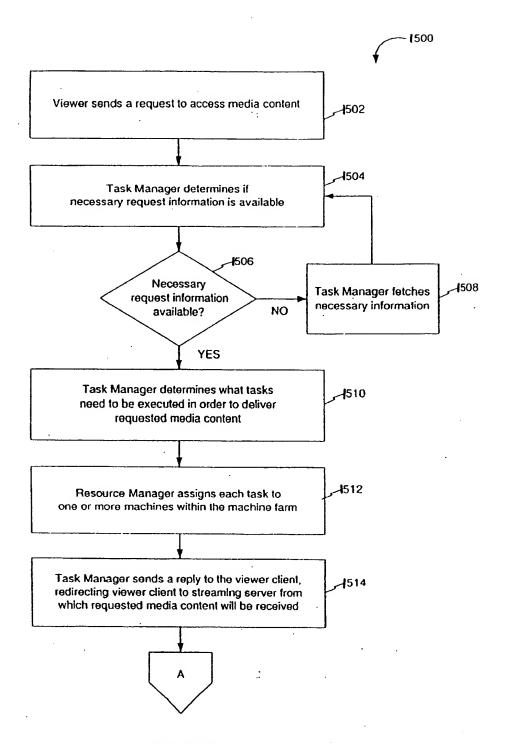Attorney: Andrew V. Smith, 415-836-2522

Start ~ 550

Fetch estimated bandwidth information ~ 552

determining estimated time to retrieve data for determining connection speed with adequate resolution ~ 554

Determine chunk-size that will take estimated time to retrieve ~ 556

Retrieve/send determined chunk size and measure time to retrieve/send ~ 558

Determine bandwidth based on chunk size and retrieval time ~ 560

Return ~ 562

FIG. 5B

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Attorney: Andrew V. Smith, 415-836-2522

1500

Viewer sends a request to access media content — 1502

Task Manager determines if
necessary request information is available — 1504

Necessary
request information
available? — 1506

NO → Task Manager fetches
necessary information — 1508

YES

Task Manager determines what tasks
need to be executed in order to deliver
requested media content — 1510

Resource Manager assigns each task to
one or more machines within the machine farm — 1512

Task Manager sends a reply to the viewer client,
redirecting viewer client to streaming server from
which requested media content will be received — 1514

A

FIG. 6A

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Inventor: Jody Shapiro; Page 13 of 17
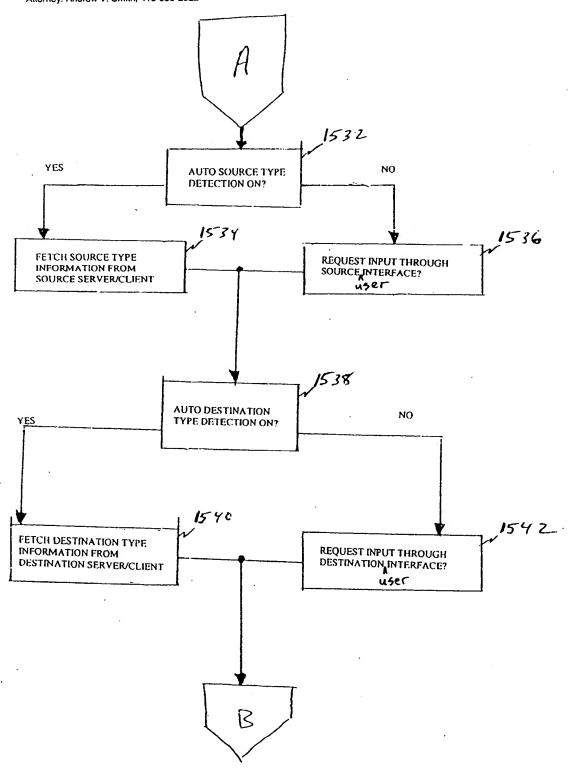Attorney: Andrew V. Smith, 415-836-2522

A

1532

AUTO SOURCE TYPE
DETECTION ON?

YES

NO

1534

FETCH SOURCE TYPE
INFORMATION FROM
SOURCE SERVER/CLIENT

1536

REQUEST INPUT THROUGH
SOURCE INTERFACE?
user

1538

AUTO DESTINATION
TYPE DETECTION ON?

YES

NO

1540

FETCH DESTINATION TYPE
INFORMATION FROM
DESTINATION SERVER/CLIENT

1542

REQUEST INPUT THROUGH
DESTINATION INTERFACE?
user

B

FIG. 6B

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Remotely ..., filed November 3, 2003
Inventor: Jody Shapiro; Page 14 of 17
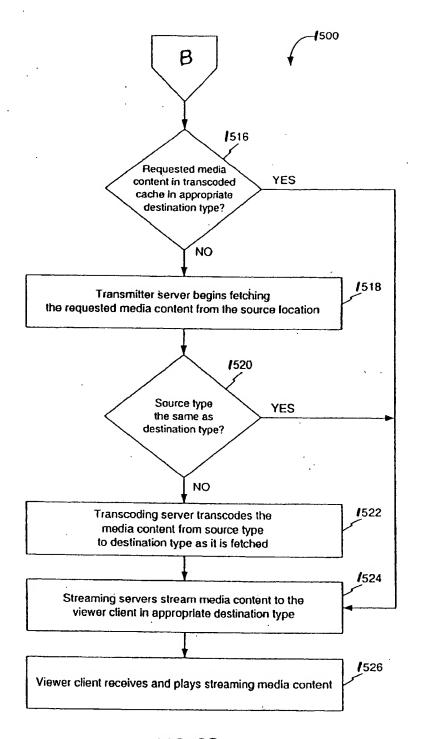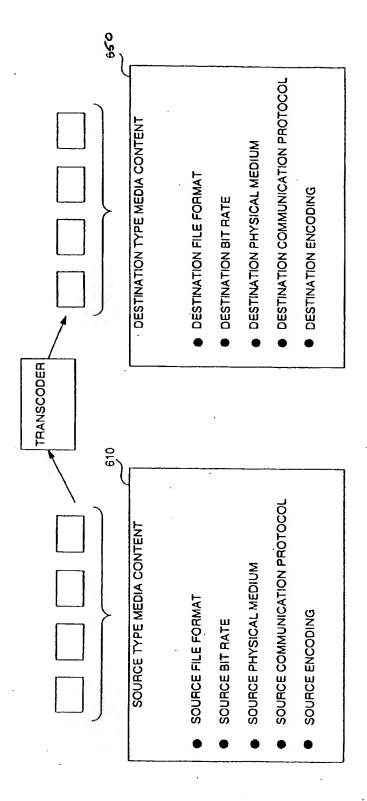Attorney: Andrew V. Smith, 415-836-2522

```
                              B                    500


                        516

              Requested media
              content in transcoded          YES
              cache in appropriate
              destination type?

                        NO

       Transmitter server begins fetching          518
       the requested media content from the source location


                        520

              Source type
              the same as                    YES
              destination type?

                        NO

       Transcoding server transcodes the          522
       media content from source type
       to destination type as it is fetched


       Streaming servers stream media content to the          524
       viewer client in appropriate destination type


       Viewer client receives and plays streaming media content          526
```

FIG. 6C

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Attorney: Andrew V. Smith, 415-836-2522

650

DESTINATION TYPE MEDIA CONTENT

- DESTINATION FILE FORMAT
- DESTINATION BIT RATE
- DESTINATION PHYSICAL MEDIUM
- DESTINATION COMMUNICATION PROTOCOL
- DESTINATION ENCODING

TRANSCODER

610

SOURCE TYPE MEDIA CONTENT

- SOURCE FILE FORMAT
- SOURCE BIT RATE
- SOURCE PHYSICAL MEDIUM
- SOURCE COMMUNICATION PROTOCOL
- SOURCE ENCODING

FIG. 7

Express Mail: EV 330728609 US
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For: System, Method, and Computer Program for
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Inventor: Jody Shapiro; Page 16 of 17
Attorney: Andrew V. Smith, 415-836-2522

PUBLISHING VARIABLES	SOURCE TYPE 710	DESTINATION TYPE 750	DESTINATION TYPE 760
PHYSICAL MEDIUM	LOCAL DISK	INTERNET	WIRELESS NETWORK
COMMUNICATION PROTOCOL	FILE I/O	WINDOWS MEDIA STREAMING MMS PROTOCOL	HTTP
CONTAINER FORMAT	MP3	WINDOWS MEDIA	MP3
ENCODING BIT RATE	128 kpbs	56 kbps	12 kbps

FIG. 8

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For: System, Method, and Computer Program for
Remotely ..., filed November 3, 2003
Inventor: Jody Shapiro; Page 17 of 17
Attorney: Andrew V. Smith, 415-836-2522

CLIENT ENVIRONMENT VARIABLES	SOURCE TYPE 810	DESTINATION TYPE 850
OS VERSION	WINDOWS XP	MAC OS X
WEB BROWSER VERSION	NAVIGATOR 3.0	OMNIWEB 4.1
HARDWARE PLATFORM	PENTIUM 4	G3
USER INTERFACE LANGUAGE	JAVASCRIPT FOR NAVIGATOR 3.0	XSLT FOR OMNIWEB 4.1

FIG. 9